

**CLAIMS**

1. Method for checking the transfer of data cells in an asynchronous switching arrangement (1) **characterized** in that it comprises a marking and a counting of the cells received and a counting of the cells, after switching when outputted from the switching structure (2) of the arrangement, in order to verify that the counts correspond and to find transfer errors of data cells due to unacceptable delays, loss and unwanted copying in the switching structure, said marking and counting being obtained according to a periodical time frame made of interleaved checking cycles which are grouped by limited and successive series of a same determined number of cycles, each cycle (C1) including a first phase (IC1) for marking and counting the cells as they are received, the identification mark, introduced in every cell received during this first phase, being related to the position of the cycle among the other cycles of the same series, with each first phase of a cycle following immediately the first phase of the preceding cycle, a second phase (OC1), starting with a determined delay (d1) after the beginning of the first phase of the same cycle, during and after this first phase for a determined duration (t2) and for counting the cells, as soon as switched, which contain the identification mark introduced during the first phase of the same checking cycle, a determination being made at the end of the second phase of each checking cycle of the correspondence between the two counts obtained during the cycle, with a specific signaling as soon as the correspondence as otherwise determined for a cycle is not obtained.

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2. Method, according to claim 1, characterized in that the result of the counting of cells specifically marked according to a determined cycle relative to one series of cycles is obtained by a count down of cells, as soon as switched, during the second phase of said cycle from the instantaneous sum value counted up of cells as soon as received, which is obtained at any moment during of the first phase of the cycle, in order to obtain a zero value at the end of the said second phase if the correspondence between counts, as otherwise determined for this cycle is verified.

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3. Method according to ~~any one of claim 1 and claim 2~~, characterized in that one of the two countings made during a phase is modified as many times as they are copies of a received cell requested at the level of the switching arrangement.

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4. Elementary asynchronous switching unit, **characterized** in that it comprises an asynchronous switching arrangement (1), including data cell transfer checking means for marking and counting the cells as soon as received and for counting the cells, as soon as switched, when outputted from the switching structure of the arrangement in order to verify that the counts correspond and to find transfer errors of data cells due to unacceptable delays and unwanted copying in the switching structure, said marking and said counting being obtained by marking (8) and counting (6, 7) means according to a periodical time frame obtained from timing means and made of interleaved checking cycles which are grouped by limited and successive series of a same determined number of cycles, each cycle (C1) including a first phase (IC1) for marking and counting the cells as soon as they are received, the identification mark, introduced in every cell received during this first phase, being related to the position of the cycle among the other cycles of the same series, with each first phase of a cycle following immediately the first phase of the preceding cycle, a second phase (OC1), starting with a determined delay (d1) after the beginning of the first phase of the same cycle and for a determined duration (t2) for counting the cells, as soon as switched, which contain the identification mark introduced during the first phase of the same checking cycle, a determination being made from the counting means at the end of the second phase of each checking cycle of the correspondence between the two counts made during the cycle with a specific signaling as soon as the correspondence otherwise determined for a cycle is not obtained.

5. Asynchronous switching network, according to claim 4, which includes inter-linked switching units in one or several asynchronous switching arrangements, characterized in that each asynchronous switching arrangement, comprises data cell transfer checking means for marking and counting the cells when received and for counting the cells, as soon as switched; when outputted

from the switching structure of the arrangement in order to verify that the counts correspond and to find transfer errors of data cells due to unacceptable delays and unwanted copying in the switching structure, said marking and said counting being made by marking (8) and counting (6, 7) means according to a

5 periodical time frame obtained from timing means and made of interleaved checking cycles which are grouped by limited and successive series of a same determined number of cycles, each cycle including a first phase for marking and counting the cells as soon as they are received, the identification mark, introduced in every cell received during this first phase, being related to the

10 position of the cycle among the other cycles of the same series, with each first phase of a cycle following immediately the first phase of the preceding cycle, a second phase, starting with a determined delay, after the beginning of the first phase of the same cycle and during this first phase, for a determined duration and for counting the cells, as soon as switched, which contain the identification

15 mark introduced during the first phase of the same checking cycle, a determination being made from the counting means at the end of the second phase of each checking cycle of the correspondence between the two counts during the cycle with a specific signaling as soon as the correspondence otherwise determined for a cycle is not obtained.